

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An optical semiconductor device comprising:

a substrate;

a semiconductor laser including a lower clad layer, an active layer, and an upper clad layer formed in this order on said substrate;

an electroabsorptive modulator including said lower clad layer, a light absorption layer, and said upper clad layer formed in this order on said substrate; and

a separation region provided between said semiconductor laser and said electroabsorptive modulator and including said lower clad layer, a wave guide layer, and said upper clad layer formed in this order on said substrate, wherein

said upper clad layer extends from said semiconductor laser through said separation region to said electroabsorptive modulator,

said electroabsorptive modulator receives light generated from said semiconductor laser in a wave guide direction through the wave guide layer,

said semiconductor laser, separation region, and electroabsorptive modulator each have has a side provided in parallel with each other the wave guide direction of the light, and

said upper clad layer extends in a direction crossing the wave guide direction up to said side of said separation region.

Art Unit: 2826

2. (currently amended) The optical semiconductor device according to claim 1, which further comprises a contact layer provided on said upper clad layer, a first upper electrode provided on said contact layer in said semiconductor laser, and a second upper electrode provided on said contact layer in said electroabsorptive modulator.

3. (previously presented) The optical semiconductor device according to claim 1, which further comprises a lower electrode provided on an under-side of said substrate.

4. (previously presented) The optical semiconductor device according to claim 1, which further comprises a channel from which said upper clad layer is removed, said channel being provided such that said channel surrounds said upper clad layer.

5. (previously presented) The optical semiconductor device according to claim 4, wherein said channel extends up to said side of said reparation region.

6. (previously presented) The optical semiconductor device according to claim 1, wherein said upper clad layer extends from said semiconductor laser through said separation region to said electroabsorptive modulator via said each side.

7. (previously presented) The optical semiconductor device according to claim 2, wherein said contact layer is removed from said separation region.

8. (previously presented) The optical semiconductor device according to claim 2, wherein said contact layer has a high resistance.

9. (previously presented) The optical semiconductor device according to claim 8, wherein said high resistance of said contact layer is made by ion-implantation.

10. (new) An optical semiconductor device, comprising:  
a substrate,

a semiconductor laser formed on the substrate and including an active layer for generating a laser beam in a beam direction,

an electroabsorptive modulator formed on the substrate and including a light absorption layer for receiving the laser beam from the semiconductor laser to generate an electrical signal,

a separation region formed on the substrate between the semiconductor laser and the electroabsorptive modulator, said separation region having side portions extending in parallel to the beam direction, and

a slab disposed in the separation region for radiating heat, said slab extending continuously from one of the side portions to the other of the side portions in a direction crossing the beam direction.

11. (new) The optical semiconductor device according to claim 10, further comprising a channel disposed in the separation region around the slab and extending between the side portions of the separation region.

12. (new) The optical semiconductor device according to claim 10, further comprising a side slab disposed outside at least one of the side portions of the separation region and extending in the beam direction, said slab being connected to the side slab.

13. (new) The optical semiconductor device according to claim 10, wherein said semiconductor laser and said electroabsorptive modulator include upper electrodes, respectively, said slab being connected to at least one of the upper electrodes.